

City of



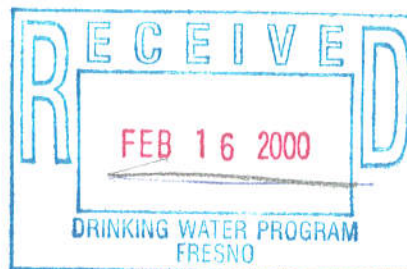
Water Division • 559-498-1458
1910 East University • Fresno, California 93703-2988

X-2990



January 31, 2000

Carl L. Carlucci, PE
Senior Sanitary Engineer
State of California
Department of Health Services
Drinking Water Operations Branch
1040 E. Herndon Avenue-Suite 205
Fresno, California 93720



Dear Mr. Carlucci:

SUBJECT: SUMMER 1999 LEAD AND COPPER SAMPLING RESULTS

Attached are results of the lead and copper monitoring performed by the City of Fresno during the summer 1999.

The City of Fresno's sample results did not exceed the action level for lead or copper with the 90th percentile samples.

The City of Fresno's water distribution system continues to be significantly below the EPA/DHS action level for both lead and copper. Accordingly, after five consecutive rounds of sampling significantly below the lead and copper action level it is interpreted that the next round of testing be resumed in the summer of 2003. Please provide, at your convenience, written confirmation of your concurrence.

Sincerely,

DEPARTMENT OF PUBLIC UTILITIES

A handwritten signature in black ink, reading "Martin R. McIntyre".

Martin R. McIntyre
Water Systems Manager

Enclosures

h:\prd\leadcopr\99ltr

CITY OF FRESNO WATER DIVISION LEAD AND COPPER RULE
COMPLIANCE MONITORING RESULTS OF SUMMER 1999 MONITORING

INTRODUCTION

The United States Environmental Protection Agency (USEPA) promulgated National Primary Drinking Water Regulations for lead and copper monitoring on June 7, 1991, (56 FR26460), commonly referred to as the Lead and Copper Rule. This Rule requires that the City of Fresno monitor the water distribution system from the source to the point of delivery at the consumer's tap. Three specific monitoring protocols are included in the Lead and Copper Rule regulations:

- 1) First draw tap water monitoring for lead and copper
- 2) distribution system monitoring for various water quality parameters, and
- 3) source water monitoring for lead, copper, and various water quality parameters.

For the purposes of the Lead and Copper Rule monitoring requirements, the City of Fresno is classified as a large public water supplier. This classification is based upon the City's 106,000 service connections which supply potable water to some 498,000 customers.

SAMPLE SITE SELECTION

The City of Fresno utilized the same Tier 1-C sample pool of 131 original residences which were selected for the initial two years of testing. Two rounds of sampling and analysis for lead and copper were required for 1993 whereas only one round was required for 1994. Eighteen of the residences were not sampled for 1994; two residents had installed water filtration/softening devices, seven residents could not be contacted, and nine chose not to participate in this

sampling. One resident had moved into an adjacent dwelling which met all the criteria for a sample site and was thus added to the sample pool. Samples were thus collected for 114 sites in the sample 1994 pool.

Per the direction of the State of California Department of Health Services, Office of Drinking Water (who presently govern the Lead and Copper Rule) both the 1996 and the 1999 sampling were reduced to fifty (50) representative sites from within the original sample pool of residences. Sites were randomly selected from each tract in an attempt to maintain equal sample percentages in accordance with previous samplings. Unfortunately not all sites selected for the 1999 sampling chose to participate. The final tract percentages are outlined below.

TRACT	ENTIRE POOL %	1996 SAMPLE %	1999 SAMPLE %
A	03%	08%	06%
B	34%	30%	32%
C	31%	30%	24%
D	18%	18%	18%
E	12%	14%	18%
F	02%	00%	02%
TOTAL	100%	100%	100%

Exhibit 1 presents the completed Sample Site Justification/Collection Method Certification Form from the Lead and Copper Rule Guidance Manual. The residents performing the tap water sampling are listed in Table 1. Water quality sampling was performed at eighteen source

locations and fifteen distribution system locations. These water quality sample locations are in the same areas as the tap water sample sites and represent the sources and distribution system for all the tap water sample sites in the 1999 Tier 1-C sample pool. The locations of the water quality sample sites are listed in Table 2.

SAMPLE COLLECTION

The City of Fresno collected their 1999 samples in compliance with the Lead and Copper Rule during the period August 22 - September 13, 1999. Residents collecting tap water samples were given written instructions (Exhibit 2) along with their sample bottle.

TAP WATER SAMPLE RESULTS

Table 3 presents the results of the tap water analysis for lead and copper. The table lists the lead and copper concentrations in descending order. This was done in order to determine the 90th percentile levels as required by the Lead and Copper Rule.

Lead Results

The 90th percentile lead level was determined by multiplying the number of samples taken by 0.9 ($50 \times 0.9 = 45$). The 90th percentile lead level for the City of Fresno samples is 0.0025 mg/L which is below the EPA action level of 0.015 mg/L. The laboratory analysis detection limit for lead is the following: values less than 0.001 mg/L are reported as 0 (zero); values between 0.0010 and 0.0049 are reported as 0.0025 mg/L; values greater than 0.005 mg/L are reported directly.

Copper Results

The 90th percentile copper level was determined in the same way as for lead. The 90th percentile copper level for the City of Fresno is 0.27 mg/L which is below the EPA action level of 1.3 mg/L. The laboratory analysis detection limit for copper is the following: values less than 0.01 mg/L are reported as 0 (zero); values between 0.010 and 0.049 mg/L are reported as 0.025 mg/L; values greater than 0.05 mg/L are reported directly.

DISTRIBUTION SYSTEM AND SOURCE SAMPLE RESULTS

Water quality analysis was performed on fifteen distribution system locations and eighteen points of entry to the distribution system. These results are summarized in Table 2.

Both the lead and copper concentrations of the source water and distribution system at these sample locations are significantly below the EPA/DHS action level. The laboratory analysis detection limit for both lead and copper have both been previously explained.

FUTURE LEAD AND COPPER MONITORING

Upon completion of this fourth year of sampling for the Lead and Copper Rule, the City of Fresno's water distribution system continues to be significantly below the EPA/DHS action level. Accordingly, it is interpreted that the next round of testing be resumed in the summer of 2003, to monitor lead and copper for the EPA/DHS.

h:\prd\leadcopr\99result

TABLE 1

TAP WATER SAMPLE ANALYSIS 1999

TABLE 2

WATER QUALITY PARAMETER SAMPLE LOCATIONS AND RESULTS

TABLE 3

TAP WATER SAMPLE ANALYSIS SUMMER 1999

TABLE 2

WATER QUALITY PARAMETER SAMPLE LOCATIONS AND RESULTS

Type	System ID #	Location	Lead mg/l	Copper mg/l
Dist	W2D54	(b) (6)	0.0025	ND
Dist	W2A11		0.0025	0.25
Dist	W2C43		0.19 *	0.025
Dist	E7D91		0.0025	ND
Dist	W5B23		0.0060	ND
Dist	E4B45		0.066 *	0.21
Dist	E3B43		0.0025	0.025
Dist	E3A19		0.0080	ND
Dist	E4C47		0.013	ND
Dist	E4C68		0.068	0.14
Dist	E3C67		0.053 *	0.025
Dist	E3B44		0.045 *	ND
Dist	E8D42		0.032 *	0.025
Dist	E3D93		0.0032	0.025
Dist	E8A16		0.032 *	0.025

TABLE 2

WATER QUALITY PARAMETER SAMPLE LOCATIONS AND RESULTS

Type	System ID #	Location	Lead mg/l	Copper mg/l
Source	W-6B	(b) (6)	ND	ND
Source	W-79	(b) (9)	0.0025	ND
Source	W-86		ND	ND
Source	W-89		ND	ND
Source	W-91		0.0025	ND
Source	W-94		ND	ND
Source	W-97		ND	ND
Source	W-99		ND	ND
Source	W-120		0.0025	0.025
Source	W-131		ND	ND
Source	W-133		0.024*	0.090
Source	W-134		ND	ND
Source	W-136		0.0025	0.025
Source	W-141		ND	ND
Source	W-143		0.0025	ND
Source	W-169		0.0025	ND
Source	W-178		0.0025	ND
Source	W-181		ND	ND

TABLE 3

TAP WATER SAMPLE ANALYSIS (LEAD)-SUMMER 1999

#	Rank	mg/l	#	Rank	mg/l	#	Rank	mg/l
88	50	0.022	01	32	0.0025	105	14	0
140	49	0.008	159	31	0	58	13	0
143	48	0.0025	136	30	0	111	12	0
134	47	0.0025	174	29	0	124	11	0
148	46	0.0025	129	28	0	57	10	0
147	45	0.0025	95	27	0	36	9	0
21	44	0.0025	107	26	0	39	8	0
156	43	0.0025	164	25	0	26	7	0
142	42	0.0025	83	24	0	84	6	0
10	41	0.0025	51	23	0	76	5	0
157	40	0.0025	67	22	0	20	4	0
64	39	0.0025	139	21	0	43	3	0
131	38	0.0025	168	20	0	158	2	0
130	37	0.0025	165	19	0	71	1	0
120	36	0.0025	87	18	0			
55	35	0.0025	61	17	0			
2	34	0.0025	40	16	0			
3	33	0.0025	86	15	0			

TABLE 3

TAP WATER SAMPLE ANALYSIS (COPPER)-SUMMER 1999

#	Rank	mg/l	#	Rank	mg/l	#	Rank	mg/l
136	50	0.47	83	32	0.18	124	14	0.10
148	49	0.42	21	31	0.18	76	13	0.10
168	48	0.34	67	30	0.17	58	12	0.099
130	47	0.31	40	29	0.16	105	11	0.091
174	46	0.27	107	28	0.15	2	10	0.088
156	45	0.27	140	27	0.15	71	9	0.081
139	44	0.26	3	26	0.14	165	8	0.07
147	43	0.26	55	25	0.14	36	7	0.07
159	42	0.26	1	24	0.14	157	6	0.069
143	41	0.24	134	23	0.12	57	5	0.051
129	40	0.24	95	22	0.12	111	4	0.025
10	39	0.24	39	21	0.12	84	3	0.025
64	38	0.24	43	20	0.12	20	2	0.025
120	37	0.24	131	19	0.11	158	1	0.025
164	36	0.23	87	18	0.11			
142	35	0.23	86	17	0.11			
88	34	0.22	26	16	0.11			
51	33	0.21	61	15	0.10			

EXHIBIT 1

SAMPLE SITE JUSTIFICATION/COLLECTION METHOD CERTIFICATION

Form 141-AR

LEAD AND COPPER MONITORING SUMMARY

SAMPLE SITE IDENTIFICATION AND CERTIFICATION

System's Name: CITY OF FRESNO WATER DIVISION Type: ☒ Community Water System
☐ Non Transient Non Community Water System

Address:

1910 E. UNIVERSITY AVE
FRESNO, CA 93703-2988

Population:

- ☐ >100,000
☐ 10,001 to 100,000
☐ 3,301 to 10,000
☐ 501 to 3,300
☐ 101 to 500
☐ ≤ 100

Telephone number: (559) 498-1458DHS System #: 10-007Contact Person: MARTIN MCINTYRE

CERTIFICATION OF SAMPLING SITES

LEAD SOLDER SITES

of single-family structures with copper pipes with lead solder installed after 1982 or lead pipes and/or lead service lines (Tier 1)

50

of multi-family structures with copper pipes with lead solder installed after 1982 or lead pipes and/or lead services lines (Tier 1)

0

of buildings containing copper pipes with lead solder installed after 1982 or lead pipes and/or lead service lines (Tier 2)

0

of sites that contain copper pipes with lead solder installed before 1983 (to be used only if other conditions have been exhausted) (Tier 3)

0

TOTAL

50

The following sources have been explored to determine the number of structures which have interior lead pipe or copper with lead solder:

- ☒ Plumbing and/or building codes
☒ Plumbing and/or building permits
☒ Contacts within the building department, municipal clerk's office, or state regulatory agencies for historical documentation of the service area development
☒ Water Quality Data

Other Resources Which PWS May Utilize

- ☒ Interviews with building inspectors
☒ Surveys of service area plumbers about when and where lead solder was used from 1982 to present
☒ Survey residents in sections of the service area where lead pipe and/or copper pipe with lead solder is suspected to exist
☒ Interviews with local contractors and developers

Explanation of Tier 2 and Tier 3 sites (attach additional pages if necessary)

TIER 1 USED ONLY

Form 141-AR

LEAD AND COPPER MONITORING SUMMARY

SAMPLE SITE IDENTIFICATION AND CERTIFICATION

CERTIFICATION OF SAMPLING SITES (continued)

LEAD SERVICE LINE SITES

of samples required to be drawn from lead service line sites

of samples actually drawn from lead service line sites

Difference (explain differences other than zero)

0

0

0

The following sources have been explored to determine the number of lead service lines in the distribution system:

- ☒ Distribution system maps and record drawings
- ☒ Information collected for the presence of lead and copper as required under §141.42 of the Code of Federal Regulations
- ☒ Capital Improvement plans and/or master plans for distribution system development
- ☒ Current and historical standard operating procedures and/or operation and maintenance (O & M) manuals for the type of materials used for service connections
- ☒ Utility records including meter installation records, customer complaint investigations and all historical documentation which indicate and/or confirm the location of lead service connections
- ☒ Existing water quality data for indications of "troubled areas"

Other Resources Which PWS May Utilize

- ☒ Interviews with senior personnel
- ☒ Conduct service line sampling where lead service lines are suspected to exist but their presence is not confirmed
- ☒ Review of permit files
- ☒ Community survey
- ☒ Review of USGS maps and records
- ☒ Interviews with pipe suppliers, contractors, and/or developers

Explanation of fewer than 50% LSL sites identified (attach additional pages if necessary):

CERTIFICATION OF COLLECTION METHODS

I certify that:

Each first draw tap sample for lead and copper is one liter in volume and has stood motionless in the plumbing system of each sampling site for at least six hours.

Each first draw sample collected from a single-family residence has been collected from the cold water kitchen tap or bathroom sink tap.

Each first draw sample collected from a non-residential building has been collected at an interior tap from which water is typically drawn for consumption.

Each first draw sample collected during an annual or triennial monitoring period has been collected in the months of June, July, August or September.

Each resident who volunteered to collect tap water samples from his or her home has been properly instructed by [insert water system's name] CITY OF FRESNO WATER DIVISION sampling results. Enclosed is a copy of the material distributed to residents explaining the proper collection methods, and a list of the residents who performed sampling.

Form 141-AR

LEAD AND COPPER MONITORING SUMMARY

SAMPLE SITE IDENTIFICATION AND CERTIFICATION

RESULTS OF MONITORING

THE RESULTS OF LEAD AND COPPER TAP WATER SAMPLES MUST BE ATTACHED TO THIS DOCUMENT

of samples required 50# of samples submitted 5090th Percentile Pb 0.0025 ppm90th Percentile Cu 0.27 ppm

THE RESULTS OF WATER QUALITY PARAMETER SAMPLES MUST BE ATTACHED TO THIS DOCUMENT

of samples required

15

of tap samples submitted

15

of entry point samples required

18

of entry point samples submitted

18

CHANGE OF SAMPLING SITES

Original site address:

SEE ATTACHED

New site address:

SEE ATTACHED

Distance between sites (approximately):

LESS THAN 1/2 MILETargeting Criteria: NEW: AREA SERVEDOLD: AREA SERVED

Reason for change (attach additional pages if necessary):

PROXIMITY TO AREA SERVED

SIGNATURE

Martin R. McDevitt

NAME

MARTIN R. McDEVITT

TITLE

MANAGER

DATE

2/14/00

SAMPLE

Explanation of Tier 3 Sites - System #_____

_____ mailed a survey card to every customer in the _____ system soliciting sampling volunteers. The survey card requested, among other things, the residence age and type of plumbing. The respondents were grouped as tier 1, 2, 3 or other and contacted by telephone to verify tier classification and participation. Tier 3 sites were used as sampling points because an insufficient number of tier 1 and tier 2 sites agreed to participate. In addition to the mass-mailed survey cards, the following sources were investigated in order to establish the tier groupings: distribution system maps, current and historical standard operating procedures, interviews with senior personnel, contact with building department officials and current and historical water quality data.

_____ CUSTOMER LIST - 4TH ROUND - DHS SYSTEM # _____

NAME	ADDRESS	CITY, STATE, ZIP

WHY ARE WE WRITING TO YOU TODAY?

As the provider of water to your home, we are committed to delivering a safe, reliable source of drinking water to you and your family. Part of that commitment includes meeting the regulations of the California Department of Health Services. Continual monitoring and testing of water supplied to our customers is just part of the work necessary to meet the safe drinking water standards which the DHS has determined to be in the best interest of the public's health.

LEAD IN DRINKING WATER

For a number of years, the U.S. EPA has been studying the various sources and levels of lead in the environment, and its effects on children and adults. Lead is a common, natural, and often useful metal, and is present in the air, in food, in the water and soil. However, high concentrations of lead may pose adverse health effects, depending upon total exposure from all lead sources.

According to U.S. EPA reports, lead levels in drinking water are generally low in the United States. On an average, only 10 to 20% of total lead exposure comes from water. In addition, only about 1% of all source waters (that is the water supplied to the public from groundwater or wells, lakes and rivers) exceed acceptable lead levels.

Studies have shown that plumbing systems in the home are the major source for lead in drinking water. This is due to a reaction that occurs between the water and lead pipe, or lead-based solder, which is used to seal the areas where pipes join. This reaction is called corrosion, and when it takes place, a very small amount of lead dissolves (or "leaches") into the water. The degree of corrosion may also be affected by the natural mineral content of the water.

Lead levels are likely to be highest if:

- ◆ a home has lead pipes
- ◆ a home has a lead service line
- ◆ a home has copper pipes joined with lead solder
- ◆ a home is less than five years old
- ◆ a home is equipped with brass faucets

NEW LEAD REGULATIONS

In 1995 the DHS set strict, new statewide standards aimed at reducing the levels of lead in drinking water. These new standards are just a part of the Department's overall strategy to lower exposure to lead from all sources, including water, air, lead-based paint, soil and dust.

All public water suppliers must begin monitoring for lead at household taps. The results of the samples will tell water suppliers what actions, if any, will need to be taken to comply with the new regulations.

WE NEED YOUR HELP

To comply with DHS requirements, we must identify a select number of homes where samples will be taken. This means that a certain number of residences in our service area have the opportunity to have their water sampled and paid for by the water company.

We are offering the opportunity to our customers to participate in the lead testing program by serving as a "sample test site". Participation is strictly voluntary. If your home is selected as a sample test site, you will be advised of the test results for your home, when they become available.

WHAT YOU WILL BE ASKED TO DO

Lead levels in drinking water can vary greatly, depending on the household tap, the time the water has been sitting in the pipes, and the age of the plumbing system. Because of this, DHS has set specific criteria for drawing water samples.

If your home is selected as a sample test site, you will be asked to collect a few bottles of tap water twice over a one year period, beginning in 1996. You will be supplied with the sample bottles and be given specific instructions. The samples must be drawn after water has been left undisturbed in the pipes for at least six hours. They can be taken in the morning, or in the afternoon at homes where people are normally gone during the day.

If you would be interested in participating in this program, please carefully answer the questions at the bottom of this page and return it to us as soon as possible. You will be contacted if your home is selected.

WE ARE HERE TO ANSWER YOUR QUESTIONS

If you have any questions about the lead sampling program or the new regulations, please feel free to contact us. Information with basic tips on how to minimize the possibility of lead entering the water from your home plumbing system is available for any customer who requests it.

Thank you for your help!

☐ **I am interested in participating in the lead sampling program.**

1. How long have you lived in your home? _____ years
2. What is the approximate age of your home? _____ years
3. What type of plumbing is used in your home? Copper _____ Lead _____ Plastic _____ Galvanized steel _____ Other _____
4. Have you ever replaced the plumbing in your home? _____ If yes, when? _____
5. Do you have a water softener? _____ If yes, do you have a kitchen or bathroom tap that has a soft water by-pass (a drinking water tap that is unsoftened)? _____

☐ **Please contact me with additional details.**

Name _____

Address _____

TO BE COMPLETED BY WATER CENTER CUSTOMER/SAMPLER

Sample Date: _____

Sample Time: _____

Sample From Kitchen or Bathroom Faucet: _____

I have read the Water Sampling Instructions and have taken a tap sample in accordance with these directions.

Signature: _____

Date: _____

Print Name: _____

Address: _____

Zip: _____ Daytime Phone: _____

Water Sampling Instructions

The accuracy of this test requires that the sample water has been standing in your household plumbing for at least 6 hours, but not to exceed 12 hours. This includes both inside and outside use of any water. For this reason, it will probably be best if you take the sample first thing in the morning, or when you return home from work.

Take the sample from the **Kitchen** or **Bathroom** faucet.

Please follow these directions carefully:

1. **Make certain that no water has been used for 6-12 hours prior to the test.** If it has, wait until another time to take your sample and call us to reschedule sample pick-up.
2. Fill out the label on the bottle, and sign it.
3. Slowly turn on the cold water tap to fill the bottle. Do not rinse the bottle. The water should trickle slowly, without splashing.
4. Slowly fill the bottle to the indicated fill line, taking care not to overfill it. The filling process should take a few minutes to ensure an adequately slow flow rate in the plumbing.

5. Cap the bottle and place it on your front doorstep so that we may pick it up without disturbing you. Complete the form on the reverse of this instruction sheet and place it over the bottle neck.

Thank you for your cooperation. If you have any questions regarding these instructions, please call your local Citizens Utilities Customer Service Representative at (916) 568-4200.

You will receive the results of the tests in approximately 3-4 weeks.

**Calculating the 90th Percentile Results
for
Lead and Copper Monitoring**

Instructions

1. List sample results for lead sampling from low to high as shown in Example 1.
2. Multiply the number of samples by 0.9 and round that number to the nearest whole number.

If you are taking 5 samples, then simply average the 4th and 5th highest results.

Example 1

- Step 1. List the lead sample results in a table from low to high.
Step 2. 90th Percentile = 10 samples X 0.9 = Sample number 9.

<u>Lead Results</u>	<u>Sample Count</u>
0.0000	1
0.0000	2
0.0000	3
0.0001	4
0.0004	5
0.0008	6
0.0010	7
0.0010	8
0.0012	9
0.0013	10

90th Percentile Level is 0.0012 mg/l

Example 2 (Five Samples)

- Step 1. List the lead sample results in a table from low to high.
Step 2. If you are taking 5 samples, then simply average the 4th and 5th highest results.
Therefore, the 90th Percentile = $0.0001 + 0.0004$ divided by two = $0.0005 \div 2 = 0.00025$

<u>Lead Results</u>	<u>Sample Count</u>
0.0000	1
0.0000	2
0.0000	3
0.0001	4
0.0004	5

90th Percentile Level is 0.00025 mg/l

SAMPLE SITE IDENTIFICATION AND CERTIFICATION

STATE FORM 141-R LEAD AND COPPER MONITORING SUMMARY

CHANGE OF SAMPLING SITES

Type	System ID #	Location	Justification
Source	W-6B	(b) (9)	Proximity to area served
Source	W-89		Proximity to area served
Source	W-99		Proximity to area served
Source	W-131		Proximity to area served
Source	W-134		Proximity to area served
Source	W-141		Proximity to area served
Source	W-143		Proximity to area served
Source	W-178		Proximity to area served
Source	W-181		Proximity to area served
Dist	E3A19	(b) (6)	Proximity to area served
Dist	E4C68		Proximity to area served
Dist	E8D42		Proximity to area served
Dist	E3D93		Proximity to area served
Dist	E8A16		Proximity to area served

SAMPLE SITE IDENTIFICATION AND CERTIFICATION

STATE FORM 141-R LEAD AND COPPER MONITORING SUMMARY

CHANGE OF SAMPLING SITES

Type	System ID #	Location	Justification
Source	W-6B	(b) (9)	Proximity to area served
Source	W-89		Proximity to area served
Source	W-99		Proximity to area served
Source	W-131		Proximity to area served
Source	W-134		Proximity to area served
Source	W-141		Proximity to area served
Source	W-143		Proximity to area served
Source	W-178		Proximity to area served
Source	W-181		Proximity to area served
Dist	E3A19	(b) (6)	Proximity to area served
Dist	E4C68		Proximity to area served
Dist	E8D42		Proximity to area served
Dist	E3D93		Proximity to area served
Dist	E8A16		Proximity to area served

EXHIBIT 2

RESIDENT TAP SAMPLE COLLECTION DIRECTIONS & PROCEDURES

City of



Water Division • 559-498-1458
1910 East University • Fresno, California 93703-2988



August 12, 1999

Dear Resident:

Thank you for participating in the City of Fresno's Lead and Copper Tap Water Monitoring Program for 1999, which is administered by the State of California, Department of Health Services, Office of Drinking Water (DHS). The success of this Program is dependent upon residents like yourself who volunteer to collect household samples for laboratory testing.

On Thursday, August 19, 1999, we will deliver to your door all items required for this Program. Instruction for the sample collection procedure will be provided at that time and if any questions arise, please contact me at 498-4136. We will return to your residence on Monday, August 23rd to pick up this sample from your doorstep.

Thank you again for your assistance in this Lead and Copper Monitoring Program.

Sincerely,

A handwritten signature in cursive script that reads "Bill Dunn".

Bill Dunn
Water Operations

EXHIBIT 3

TAP WATER SAMPLE ANALYSIS MASTER LISTING

EXHIBIT 4

SOURCE SAMPLE LISTING FOR ENTIRE CITY

EXHIBIT 5

DISTRIBUTION SAMPLE LISTING FOR ENTIRE CITY

APPENDIX A

INSTRUCTIONS AND RESIDENT CHAIN OF CUSTODY

APPENDIX B

DISTRIBUTION SYSTEM RESULTS

APPENDIX C

SOURCE WATER RESULTS

Certificate of Analysis

Bob Little
Fresno City Water Division
1910 E. University Ave.
Fresno, CA 93703

Date Received : 08/19/99
Date Reported : 09/03/99
Submission Number : 9908000568
Project ID :
Project Desc :

TEST Copper, by ICPMS, DW, for Pb/Cu Rule

METHOD EPA 200.8

Lab Number	Sample Description	Date Sampled	Time Sampled	Date Prep.	Date Anal.	Analyte	Result	Units	PQL	Dil	DLR
126793 Temp: 19C	Well #6B	08/19/99	08:25	09/01/99	09/01/99	Copper (Cu)	ND	mg/L	0.01	1	0.01
126794 Temp: 20C	Well #94	08/19/99	08:35	09/01/99	09/01/99	Copper (Cu)	ND	mg/L	0.01	1	0.01
126795 Temp: 21C	Well #181	08/19/99	08:45	09/01/99	09/01/99	Copper (Cu)	ND	mg/L	0.01	1	0.01
126796 Temp: 20C	Well #133	08/19/99	09:00	09/01/99	09/01/99	Copper (Cu)	0.090	mg/L	0.01	1	0.01
126797 Temp: 22C	Well #143	08/19/99	09:50	09/01/99	09/01/99	Copper (Cu)	ND	mg/L	0.01	1	0.01
126798 Temp: 19C	Well #86	08/19/99	10:00	09/01/99	09/01/99	Copper (Cu)	ND	mg/L	0.01	1	0.01
126799 Temp: 20C	Well #89A1	08/19/99	10:10	09/01/99	09/01/99	Copper (Cu)	ND	mg/L	0.01	1	0.01
126800 Temp: 21C	Well #134	08/19/99	10:20	09/01/99	09/01/99	Copper (Cu)	ND	mg/L	0.01	1	0.01
126801 Temp: 22C	Well #131	08/19/99	10:30	09/01/99	09/01/99	Copper (Cu)	ND	mg/L	0.01	1	0.01
126802 Temp: 20C	Well #178	08/19/99	10:40	09/01/99	09/01/99	Copper (Cu)	ND	mg/L	0.01	1	0.01

ND : None Detected
mg/L : Milligrams/Liter = ppm
µg/L : Micrograms/Liter = ppb
mg/kg : Milligrams/Kilogram = ppm
µg/kg : Micrograms/Kilogram = ppb

PQL : Practical Quantitation Limit
Dil : Dilution Factor
DLR : Reportable Detection Limit
derived by (PQL x Dil)

Higher limits may be the result of exceptional sample matrices or interferences

Conversions:
1 ppm = 1000 ppb
1 ppb = 0.001 ppm

Certificate of Analysis

Bob Little
Fresno City Water Division
1910 E. University Ave.
Fresno, CA 93703

Date Received : 08/19/99
Date Reported : 09/03/99
Submission Number : 9908000568
Project ID :
Project Desc :

TEST Lead, by ICPMS, DW, for Pb/Cu Rule

METHOD EPA 200.8

Lab Number	Sample Description	Date Sampled	Time Sampled	Date Prep.	Date Anal.	Analyte	Result	Units	PQL	Dil	DLR
126793	Well #6B	08/19/99	08:25	09/01/99	09/01/99	Lead (Pb)	ND	mg/L	0.001	1	0.001
Temp: 19C											
126794	Well #94	08/19/99	08:35	09/01/99	09/01/99	Lead (Pb)	ND	mg/L	0.001	1	0.001
Temp: 20C											
126795	Well #181	08/19/99	08:45	09/01/99	09/01/99	Lead (Pb)	ND	mg/L	0.001	1	0.001
Temp: 21C											
126796	Well #133	08/19/99	09:00	09/01/99	09/01/99	Lead (Pb)	0.024	mg/L	0.001	1	0.001
Temp: 20C											
126797	Well #143	08/19/99	09:50	09/01/99	09/01/99	Lead (Pb)	0.0025	mg/L	0.001	1	0.001
Temp: 22C											
126798	Well #86	08/19/99	10:00	09/01/99	09/01/99	Lead (Pb)	ND	mg/L	0.001	1	0.001
Temp: 19C											
126799	Well #89A1	08/19/99	10:10	09/01/99	09/01/99	Lead (Pb)	ND	mg/L	0.001	1	0.001
Temp: 20C											
126800	Well #134	08/19/99	10:20	09/01/99	09/01/99	Lead (Pb)	ND	mg/L	0.001	1	0.001
Temp: 21C											
126801	Well #131	08/19/99	10:30	09/01/99	09/01/99	Lead (Pb)	ND	mg/L	0.001	1	0.001
Temp: 22C											
126802	Well #178	08/19/99	10:40	09/01/99	09/01/99	Lead (Pb)	0.0025	mg/L	0.001	1	0.001
Temp: 20C											

ND : None Detected
mg/L : Milligrams/Liter = ppm
μg/L : Micrograms/Liter = ppb
mg/kg : Milligrams/Kilogram = ppm
μg/kg : Micrograms/Kilogram = ppb

PQL : Practical Quantitation Limit
Dil : Dilution Factor
DLR : Reportable Detection Limit
derived by (PQL x Dil)
Higher limits may be the result of exceptional sample matrices or interferences

Conversions:
1 ppm = 1000 ppb
1 ppb = 0.001 ppm

Certificate of Analysis

Bob Little
Fresno City Water Division
1910 E. University Ave.
Fresno, CA 93703

Date Received : 08/19/99
Date Reported : 09/03/99
Submission Number : 9908000568
Project ID :
Project Desc :

TEST Turbidity, Lead/Copper Rule

METHOD SM 2130-B

Lab Number	Sample Description	Date Sampled	Time Sampled	Date Prep.	Date Anal.	Analyte	Result	Units	PQL	Dil	DLR
126793 Temp: 19C	Well #6B	08/19/99	08:25	08/19/99	08/19/99	Turbidity	ND	NTU	0.1	1	0.1
126794 Temp: 20C	Well #94	08/19/99	08:35	08/19/99	08/19/99	Turbidity	ND	NTU	0.1	1	0.1
126795 Temp: 21C	Well #181	08/19/99	08:45	08/19/99	08/19/99	Turbidity	ND	NTU	0.1	1	0.1
126796 Temp: 20C	Well #133	08/19/99	09:00	08/19/99	08/19/99	Turbidity	ND	NTU	0.1	1	0.1
126797 Temp: 22C	Well #143	08/19/99	09:50	08/19/99	08/19/99	Turbidity	ND	NTU	0.1	1	0.1
126798 Temp: 19C	Well #86	08/19/99	10:00	08/19/99	08/19/99	Turbidity	ND	NTU	0.1	1	0.1
126799 Temp: 20C	Well #89A1	08/19/99	10:10	08/19/99	08/19/99	Turbidity	ND	NTU	0.1	1	0.1
126800 Temp: 21C	Well #134	08/19/99	10:20	08/19/99	08/19/99	Turbidity	ND	NTU	0.1	1	0.1
126801 Temp: 22C	Well #131	08/19/99	10:30	08/19/99	08/19/99	Turbidity	ND	NTU	0.1	1	0.1
126802 Temp: 20C	Well #178	08/19/99	10:40	08/19/99	08/19/99	Turbidity	ND	NTU	0.1	1	0.1

ND : None Detected
mg/L : Milligrams/Liter = ppm
µg/L : Micrograms/Liter = ppb
mg/kg : Milligrams/Kilogram = ppm
µg/kg : Micrograms/Kilogram = ppb

PQL : Practical Quantitation Limit
Dil : Dilution Factor
DLR : Reportable Detection Limit
derived by (PQL x Dil)
Higher limits may be the result of exceptional sample matrices or interferences

Conversions:
1 ppm = 1000 ppb
1 ppb = 0.001 ppm

Certificate of Analysis

Bob Little
Fresno City Water Division
1910 E. University Ave.
Fresno, CA 93703

Date Received : 08/19/99
Date Reported : 09/03/99
Submission Number : 9908000567
Project ID :
Project Desc :

TEST Copper, by ICPMS, DW, for Pb/Cu Rule

METHOD EPA 200.8

Lab Number	Sample Description	Date Sampled	Time Sampled	Date Prep.	Date Anal.	Analyte	Result	Units	PQL	Dil	DLR
126786 Temp:22.5C	Well #120	08/19/99	11:17	09/01/99	09/01/99	Copper (Cu)	0.025	mg/L	0.01	1	0.01
126787 Temp:22.1C	Well #141	08/19/99	11:35	09/01/99	09/01/99	Copper (Cu)	ND	mg/L	0.01	1	0.01
126788 Temp:25.3C	Well #97	08/19/99	11:45	09/01/99	09/01/99	Copper (Cu)	ND	mg/L	0.01	1	0.01
126789 Temp:22.6C	Well #79	08/19/99	12:37	09/01/99	09/01/99	Copper (Cu)	ND	mg/L	0.01	1	0.01
126790 Temp:22.7C	Well #99	08/19/99	13:00	09/01/99	09/01/99	Copper (Cu)	ND	mg/L	0.01	1	0.01
126791 Temp:23.7C	Well #169	08/19/99	13:10	09/01/99	09/01/99	Copper (Cu)	ND	mg/L	0.01	1	0.01
126792 Temp:23.1C	Well #91	08/19/99	13:30	09/01/99	09/01/99	Copper (Cu)	ND	mg/L	0.01	1	0.01

ND : None Detected
mg/L : Milligrams/Liter = ppm
μg/L : Micrograms/Liter = ppb
mg/kg : Milligrams/Kilogram = ppm
μg/kg : Micrograms/Kilogram = ppb

PQL : Practical Quantitation Limit
Dil : Dilution Factor
DLR : Reportable Detection Limit derived by (PQL x Dil)

Higher limits may be the result of exceptional sample matrices or interferences

Conversions:
1 ppm = 1000 ppb
1 ppb = 0.001 ppm

Certificate of Analysis

Bob Little
Fresno City Water Division
1910 E. University Ave.
Fresno, CA 93703

Date Received : 08/19/99
Date Reported : 09/03/99
Submission Number : 9908000567
Project ID :
Project Desc :

TEST Lead, by ICPMS, DW, for Pb/Cu Rule

METHOD EPA 200.8

Lab Number	Sample Description	Date Sampled	Time Sampled	Date Prep.	Date Anal.	Analyte	Result	Units	PQL	Dil	DLR
126786	Well #120	08/19/99	11:17	09/01/99	09/01/99	Lead (Pb)	0.0025	mg/L	0.001	1	0.001
Temp: 22.5C											
126787	Well #141	08/19/99	11:35	09/01/99	09/01/99	Lead (Pb)	ND	mg/L	0.001	1	0.001
Temp: 22.1C											
126788	Well #97	08/19/99	11:45	09/01/99	09/01/99	Lead (Pb)	ND	mg/L	0.001	1	0.001
Temp: 25.3C											
126789	Well #79	08/19/99	12:37	09/01/99	09/01/99	Lead (Pb)	0.0025	mg/L	0.001	1	0.001
Temp: 22.6C											
126790	Well #99	08/19/99	13:00	09/01/99	09/01/99	Lead (Pb)	ND	mg/L	0.001	1	0.001
Temp: 22.7C											
126791	Well #169	08/19/99	13:10	09/01/99	09/01/99	Lead (Pb)	0.0025	mg/L	0.001	1	0.001
Temp: 23.7C											
126792	Well #91	08/19/99	13:30	09/01/99	09/01/99	Lead (Pb)	0.0025	mg/L	0.001	1	0.001
Temp: 23.1C											

ND : None Detected
mg/L : Milligrams/Liter = ppm
μg/L : Micrograms/Liter = ppb
mg/kg : Milligrams/Kilogram = ppm
μg/kg : Micrograms/Kilogram = ppb

PQL : Practical Quantitation Limit
Dil : Dilution Factor
DLR : Reportable Detection Limit
derived by (PQL x Dil)

Higher limits may be the result of exceptional sample matrices or interferences

Conversions:
1 ppm = 1000 ppb
1 ppb = 0.001 ppm

Certificate of Analysis

Bob Little
Fresno City Water Division
1910 E. University Ave.
Fresno, CA 93703

Date Received : 08/19/99
Date Reported : 09/03/99
Submission Number : 9908000567
Project ID :
Project Desc :

TEST Turbidity, Lead/Copper Rule

METHOD
SM 2130-B

Lab Number	Sample Description	Date Sampled	Time Sampled	Date Prep.	Date Anal.	Analyte	Result	Units	PQL	Dil	DLR
126786	Well #120	08/19/99	11:17	08/19/99	08/19/99	Turbidity	ND	NTU	0.1	1	0.1
Temp: 22.5C											
126787	Well #141	08/19/99	11:35	08/19/99	08/19/99	Turbidity	ND	NTU	0.1	1	0.1
Temp: 22.1C											
126788	Well #97	08/19/99	11:45	08/19/99	08/19/99	Turbidity	ND	NTU	0.1	1	0.1
Temp: 25.3C											
126789	Well #79	08/19/99	12:37	08/19/99	08/19/99	Turbidity	ND	NTU	0.1	1	0.1
Temp: 22.6C											
126790	Well #99	08/19/99	13:00	08/19/99	08/19/99	Turbidity	ND	NTU	0.1	1	0.1
Temp: 22.7C											
126791	Well #169	08/19/99	13:10	08/19/99	08/19/99	Turbidity	ND	NTU	0.1	1	0.1
Temp: 23.7C											
126792	Well #91	08/19/99	13:30	08/19/99	08/19/99	Turbidity	ND	NTU	0.1	1	0.1
Temp: 23.1C											

ND : None Detected
mg/L : Milligrams/Liter = ppm
µg/L : Micrograms/Liter = ppb
mg/kg : Milligrams/Kilogram = ppm
µg/kg : Micrograms/Kilogram = ppb

PQL : Practical Quantitation Limit
Dil : Dilution Factor
DLR : Reportable Detection Limit
derived by (PQL x Dil)
Higher limits may be the result of exceptional sample matrices or interferences

Conversions:
1 ppm = 1000 ppb
1 ppb = 0.001 ppm

BSK ANALYTICAL
LABORATORIES

Sample Activity Form

City of Fresno, Water Division 1910 E. University Ave., 93703

Sampled by: Don Buerens

Relinquished by: Don Buerens Date: 8/19/99 Time: 2:15

Received by: Don Yang

Date: 8/19/99 Time: 14:15 AM PM

Laboratory: B3e Lab Reference: 99081568 No of Samples

Contact Phone: (559) 498-4136

Sample Detail

#	Date	Time	Type	State Form	Location Description	502.2	504	504 3-DAY RUSH	505	507	515.1	525	531.1	547	548	549	550	THM'S	504 LD	G-1	F	N	LD-AR	GRS-ALHPA	RADON	Pb/Cu Rule	TOC	Temp °C
	8/19/99	8:25	Pu		Well #																							
		8:35																										
		8:45																										
		9:00																										
		9:30																										
		10:00																										
		10:10																										
		10:20																										
		10:30																										
		10:40																										

Type Key

W Drinking Water
MW Monitoring Well
SUR Surface Water
OL Solids

Analysis Key

502 Volatiles
504 DBCP, EDB
505 HCCDP
507 N/P Pesticides
515 Phenox Acid Herbicides

525 DEHA, DHP, Benzo
531.1 Carbamates
547 Glyphosates
548 Endosulf
549 Diquat

550 Benz(a)pyrene
Trihalomethanes
Title 22 Inorganics
F Fluoride
N Nitrates

LD AR
Pb Cu
TOC

Lo detect Arsenic
Lead and Copper
Turbidity

Sample Activity Form

City of Fresno, Water Division 1910 E. University Ave., 93703

Sampled by: Don Burns Requisitioned by: Don Burns Date: 8/19/99 Time: 2:15 AM PM

Received by: Don Burns Date: 8/19/99 Time: 14:15 AM PM

Laboratory: B30e Lab Reference: 99081568 No of Samples

Sample Detail

#	Date	Time	Type	State Form	Location Description	502.2	504	504 3-DAY RUSH	505	507	515.1	525	531.1	547	548	549	550	THM'S	504 LD	G-1	F	N	LD-AR	GRS-ALHPA	RADON	Pb/Cu Rule	TOC	Temp °C
	8/19/99	8:25	Pu		Well #																							
		8:35																										
		8:45																										
		9:00																										
		9:30																										
		10:00																										
		10:10																										
		10:20																										
		10:30																										
		10:40																										

Type Key

Analysis Key

Drinking Water
Monitoring Well
Surface Water
Solids

502 Volatiles
504 DBCP, EDB
505 HCCDP
507 N/P Pesticides
515 Phenoxy Acid Herbicides

525 DELIA HHP Benzene
531.1 Carbamates
547 Glyphosates
548 Endosulfan
549 Diquat

550 THM'S
Benzof(a)pyrene
Tribromomethanes
Title 22 Inorganics
Fluoride
Nitrates

LD AR
Pb Cu
TOC
Lead and Copper
Turbidity

Sample Activity Form

Sampled by S. Woods City of Fresno, Water Division 1910 E. University Ave., 93703

Received by Jon Mary Relinquished by Same Date 8/19/99 Time 14:11 AM PM

Laboratory: B5K Lab Reference: 99081566 No of Samples

Contact Phone: (559) 498-4136

Date	Time	Type	State Form	Location Description	502.2	504	504 3-DAY RUSH	505	507	515.1	525	531.1	547	548	549	550	THM'S	504 LD	G-1	F	N	LD-AR	GRS-ALHPA	RADON	Pb/Cu Rule	TOC	Lead & Copper Rule
8-19-99	1117	DM	X	WELL # 130 (Temp: 22.5°)																							
8-19-99	1135	DM	X	WELL # 141 (Temp: 22.1°)																							
8-19-99	1145	DM	X	WELL # 97 (Temp: 23.3°)																							
8-19-99	1337	DM	X	WELL # 79 (Temp: 22.6°)																							
8-19-99	1330	DM	X	WELL # 169 (Temp: 22.7°)																							
8-19-99	1330	DM	X	WELL # 91 (Temp: 23.1°)																							

Analysis Key

502 Volatiles
504 DBCP, EDB
505 HCCDP
507 NP Pesticides
515 Phenoxyl Acid Herbicides

525 DELTA DELTA Benzene
531.1 Carbonates
547 Glyphosates
548 Endothall
549 Diquat

550 THM'S
Benz(a)pyrene
Trihalomethanes
Total 22 Inorganics
Fluoride
Nitrates

LD ARI
Pb/Cu
TOC

To detect Arsenic
Lead and Copper
Initially

APPENDIX D

RESIDENT SAMPLE SITE RESULTS